



Public Health  
England

# The Epidemiology of TB: Yorkshire and Humber and England

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Specialised Commissioning



# National & International Picture

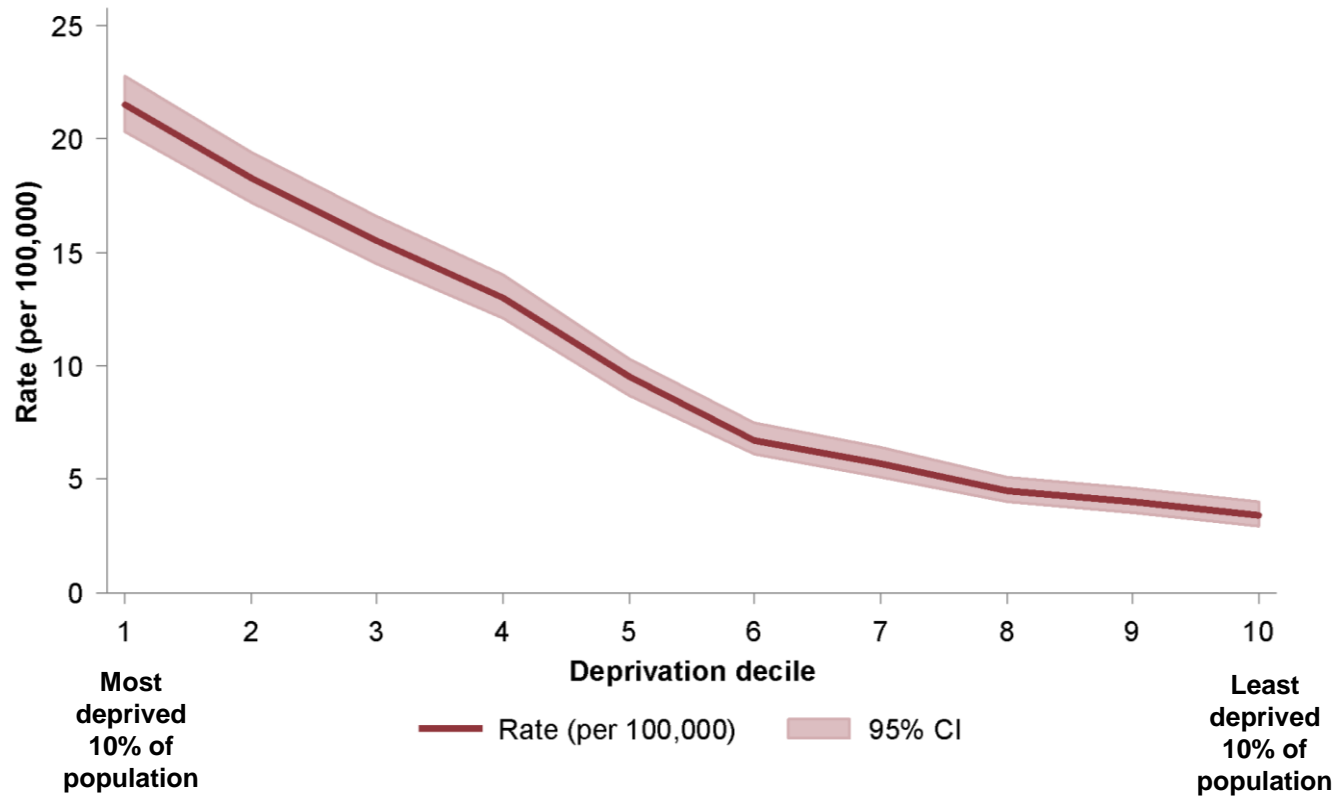
- Major declines in the incidence of TB during most of the 20th century
- Incidence of TB in England increased steadily from the late 1980s to 2005
- Has remained at relatively high levels ever since (although a downward trend since 2013)
- England has one of the highest TB rates in Western Europe
- The incidence of TB in England is more than four times higher than in the US



# National Variation

- Marked inequalities: geographical and socioeconomic distribution of cases
- TB concentrated in large urban centres, with rates in London, Leicester, Birmingham, Luton, Manchester and Coventry >3x the national average
- Other areas with high caseloads: Bradford, Leeds, Kirklees, Slough and Reading
- Nearly 3/4 of all TB cases occur in non-UK born
- 85% these cases occur among settled migrants who have been in the country for more than two years
- Strong association: TB & Social deprivation, with 70% of cases occurring among residents of areas in the two most deprived quintiles in the country, with 9% of all TB cases having at least one social risk factor

# Rate of TB by deprivation decile, England, 2016





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# TB Incidence in 2016

Yorkshire and the Humber

England

425 cases

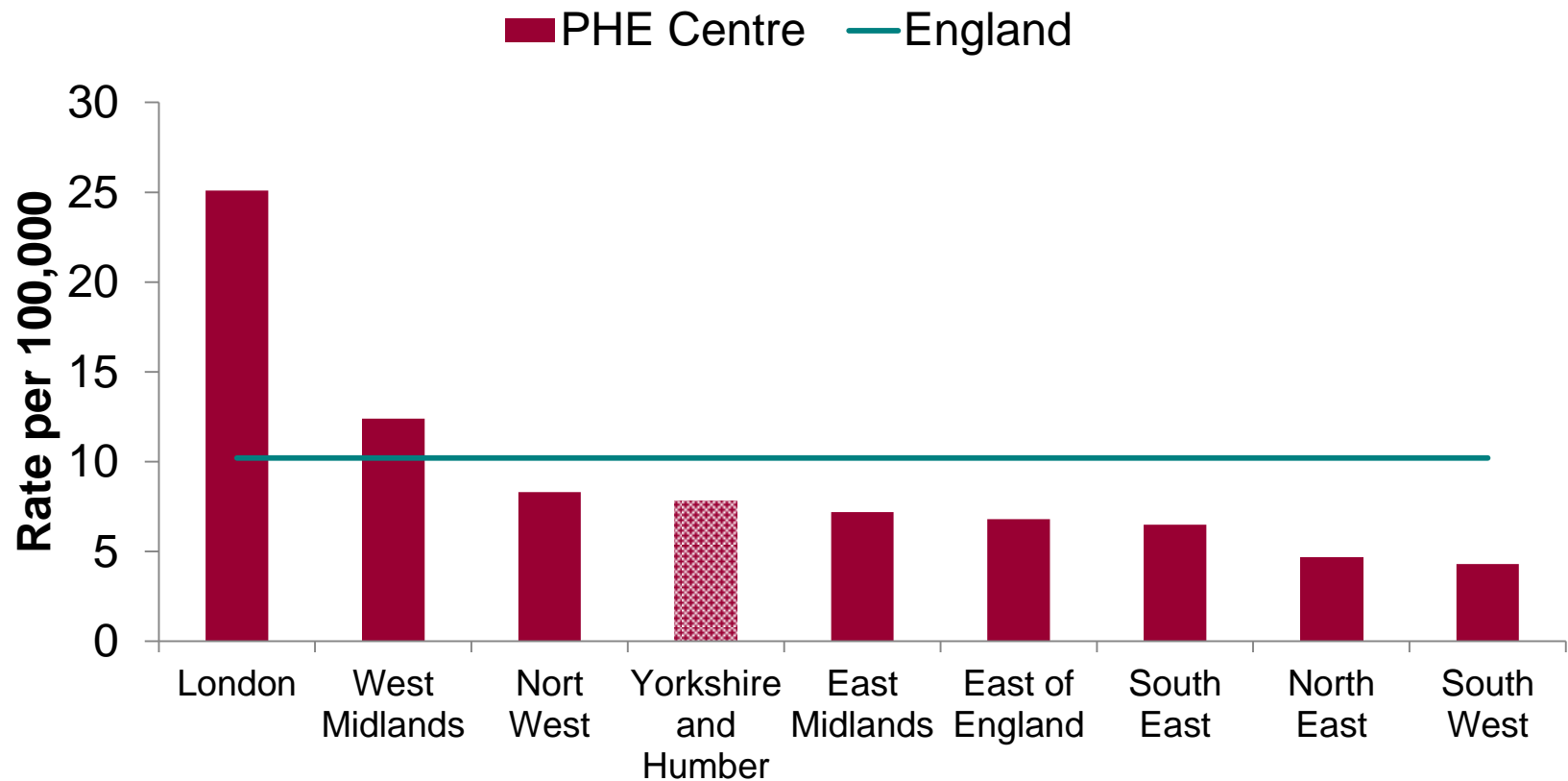
5,664

Incidence rate 7.8 cases  
/100,000

Incidence rate 10.2 cases  
/100,000

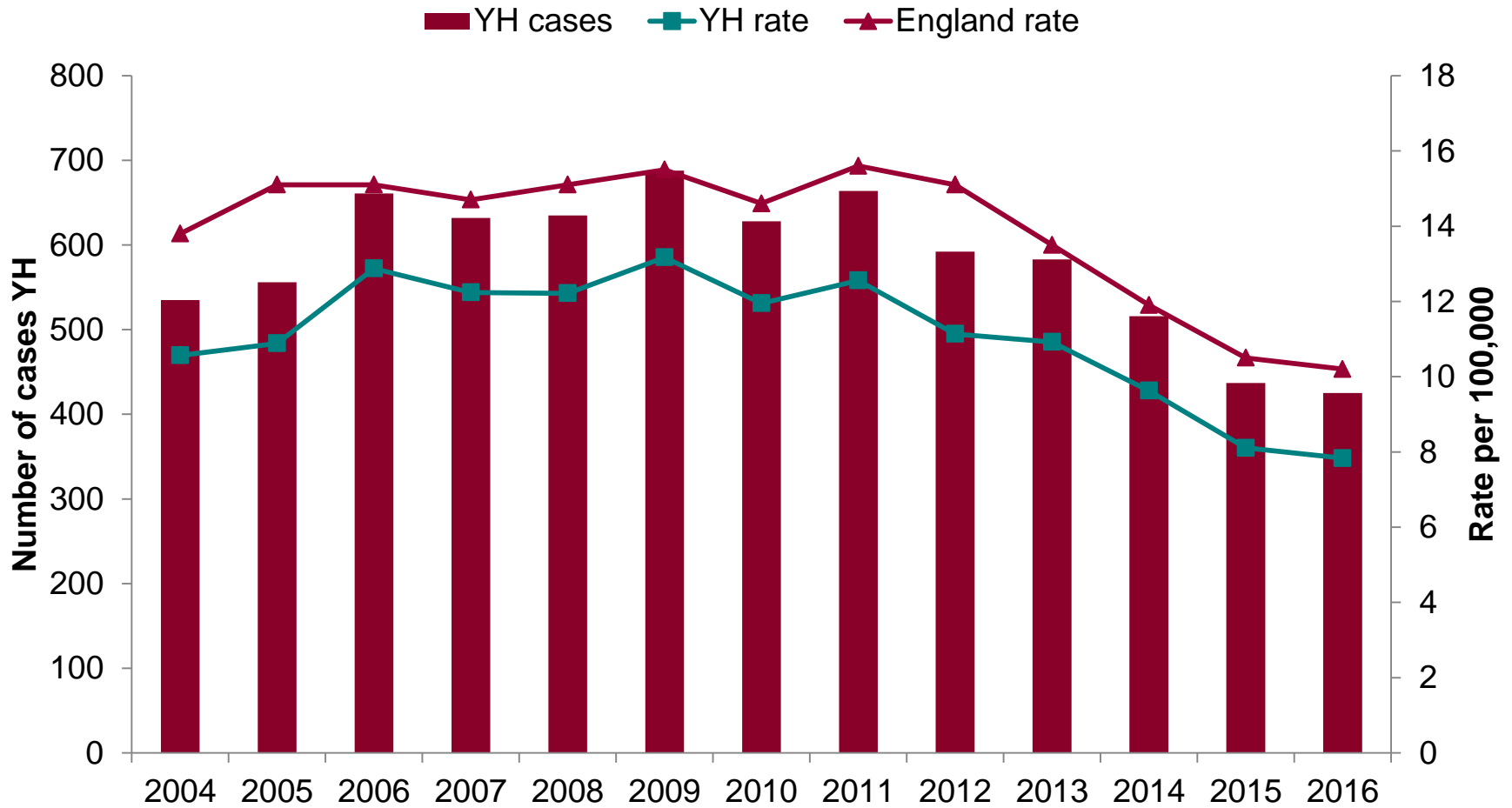


# PHE Centre Rate comparison (2016)



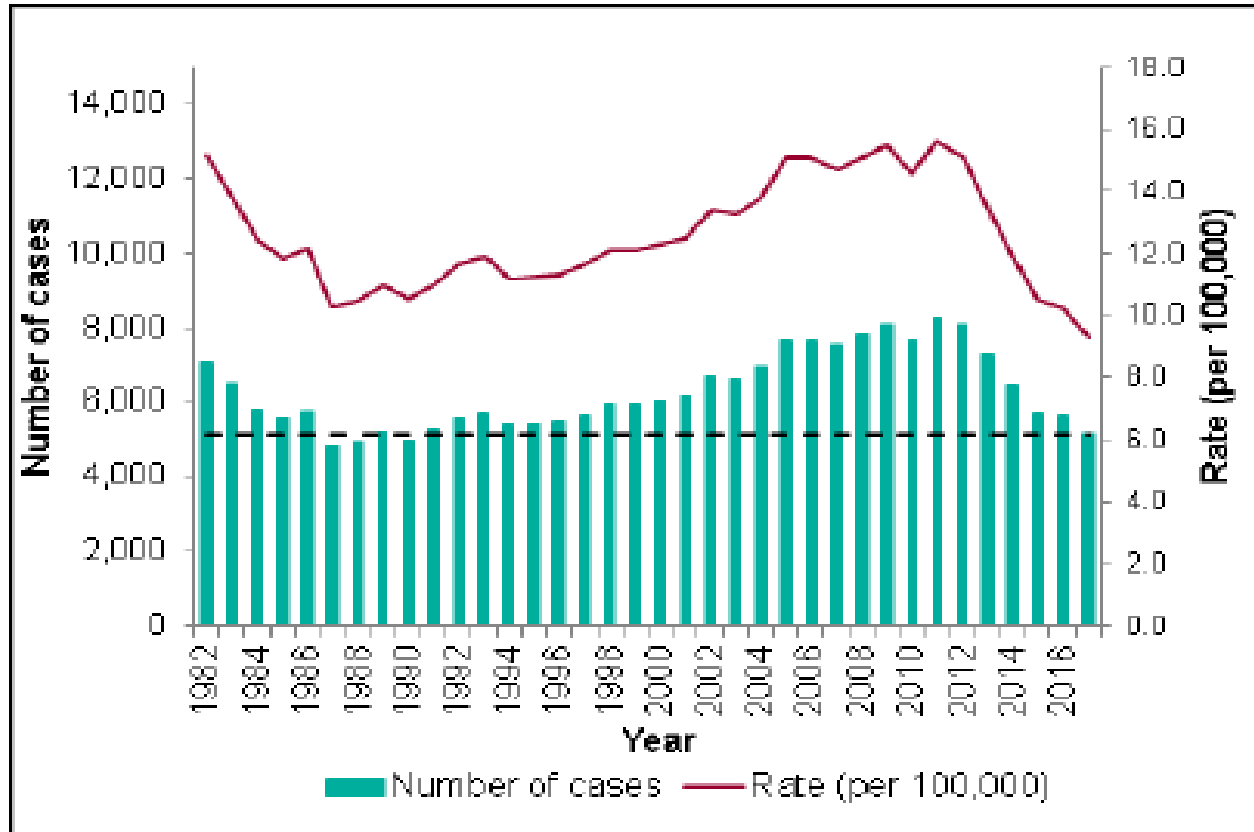


# Overall incidence is declining





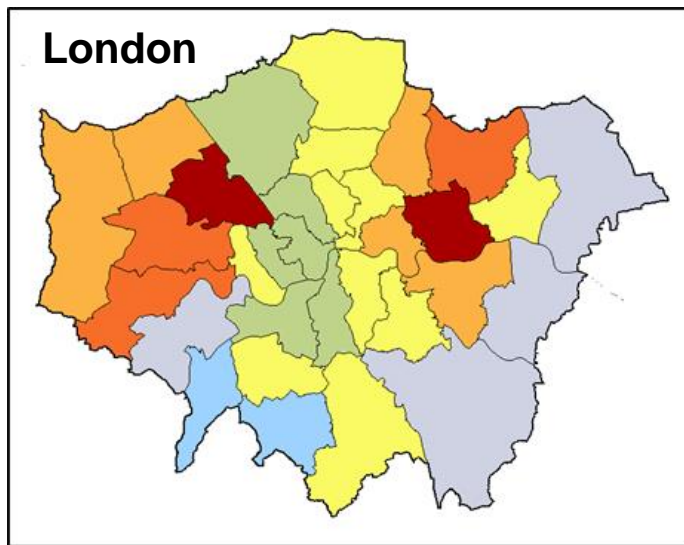
# Provisional England 2017 data\*



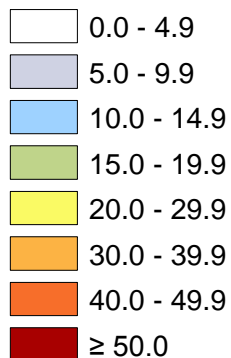
\*Provisional data. Data from 1982 - 1999 is from NOIDS and data from 2000 - 2017 is from ETS. The rate of TB for 2017 has been calculated using 2016 population estimates.



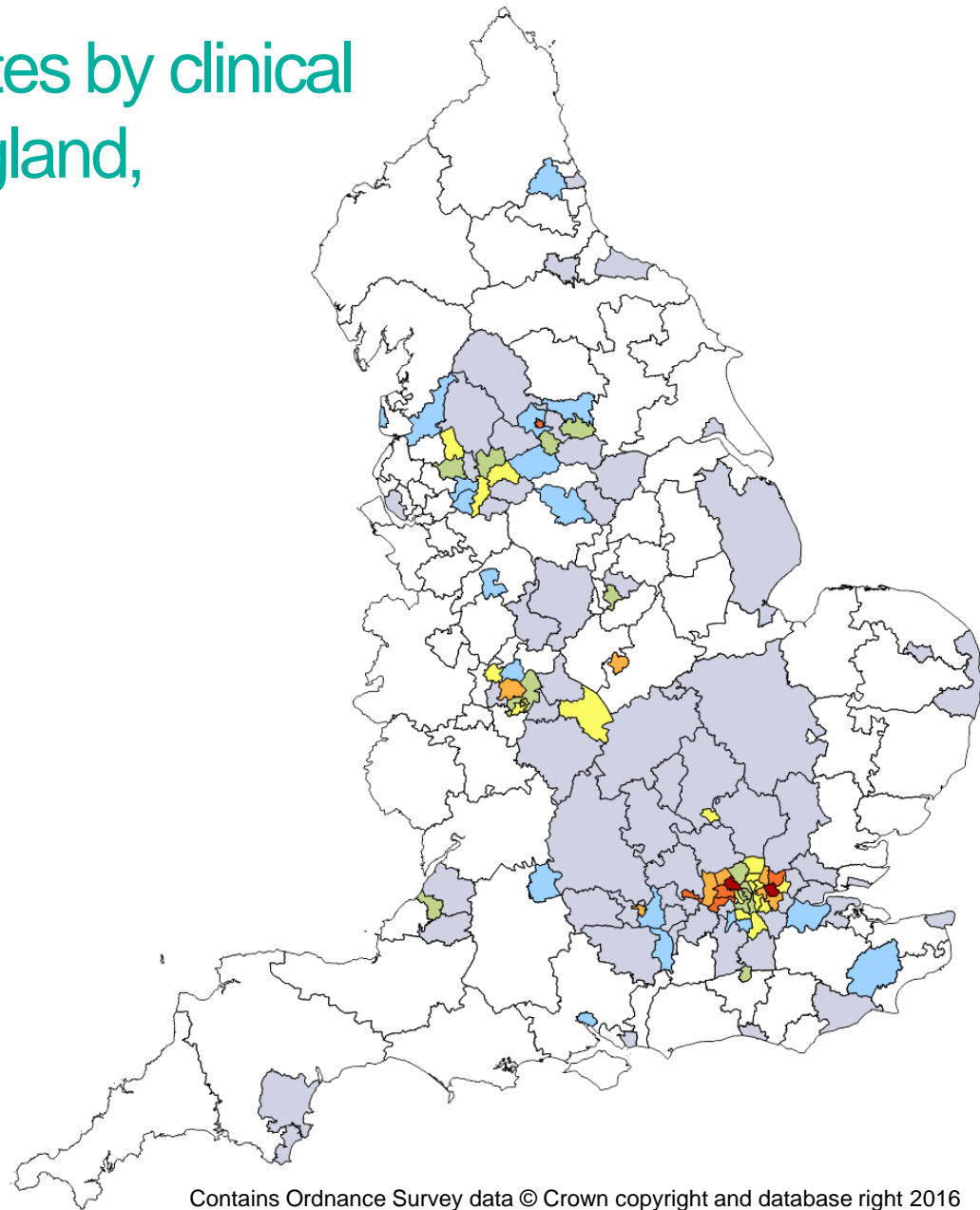
# Three-year average TB rates by clinical commissioning group, England, 2014-2016



Tuberculosis rate (per 100,000)



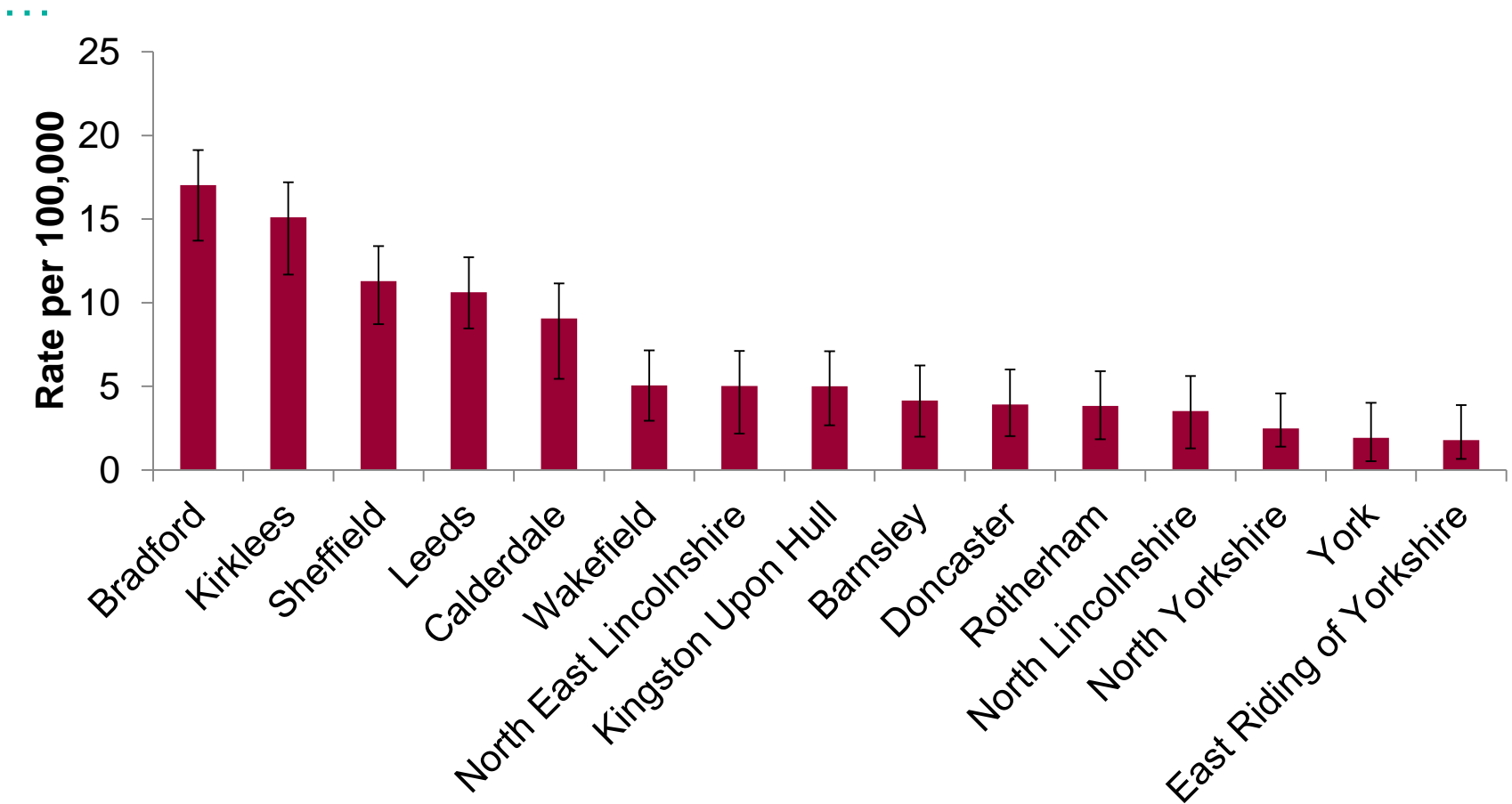
40% of CCGs had a 3-year average rate of <5.0 per 100,000



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 Contains National Statistics data © Crown copyright and database right 2016



# Local level variation persists in Yorkshire and Humber



# TB case notifications and rates by place of birth, England, 2000-2016

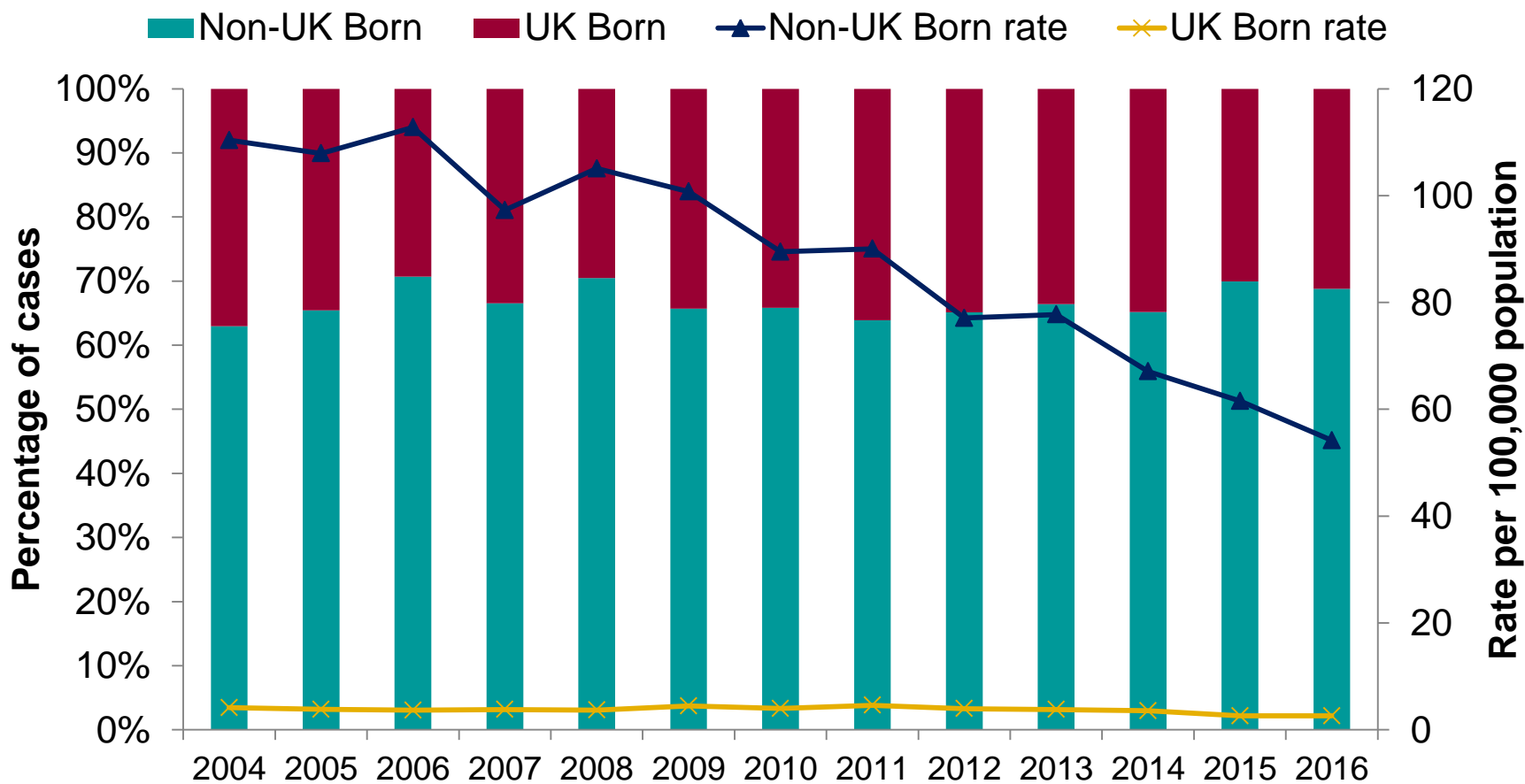


**Please note:** confidence intervals around the UK born population are small therefore not visible.



# Place of birth

**Tuberculosis case reports by place of birth, proportion of cases and rate per 100,000 population, Yorkshire and Humber, 2004-2016**

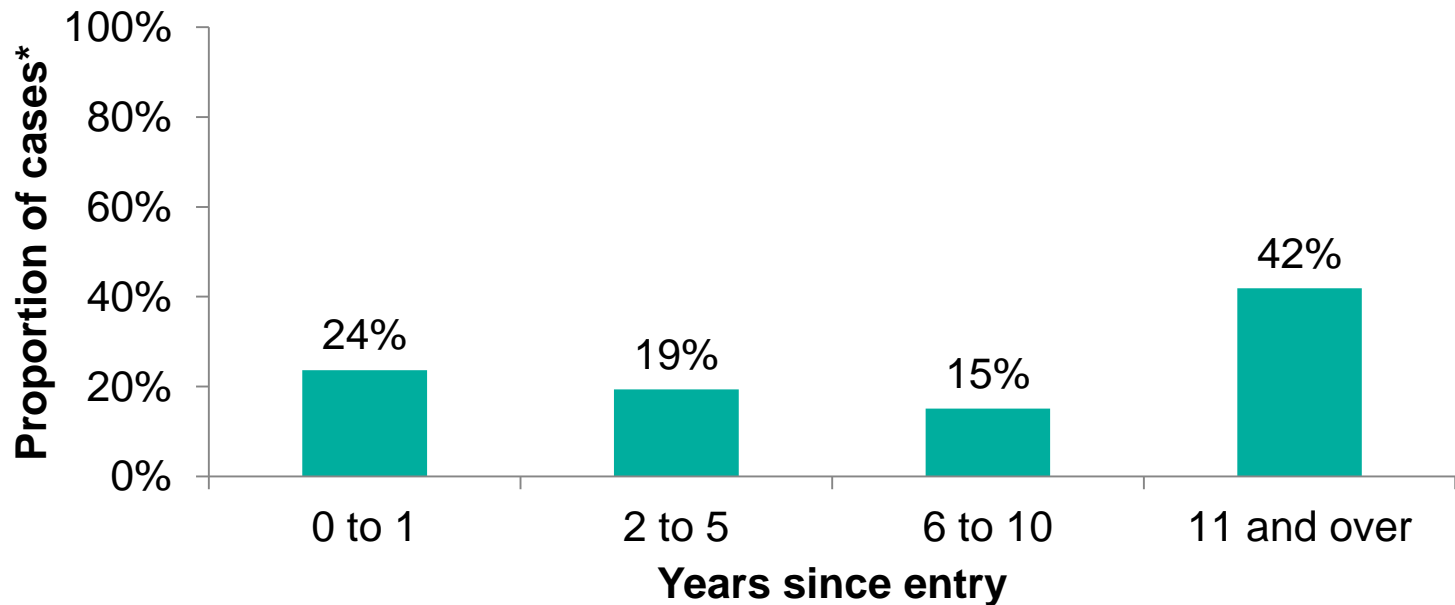




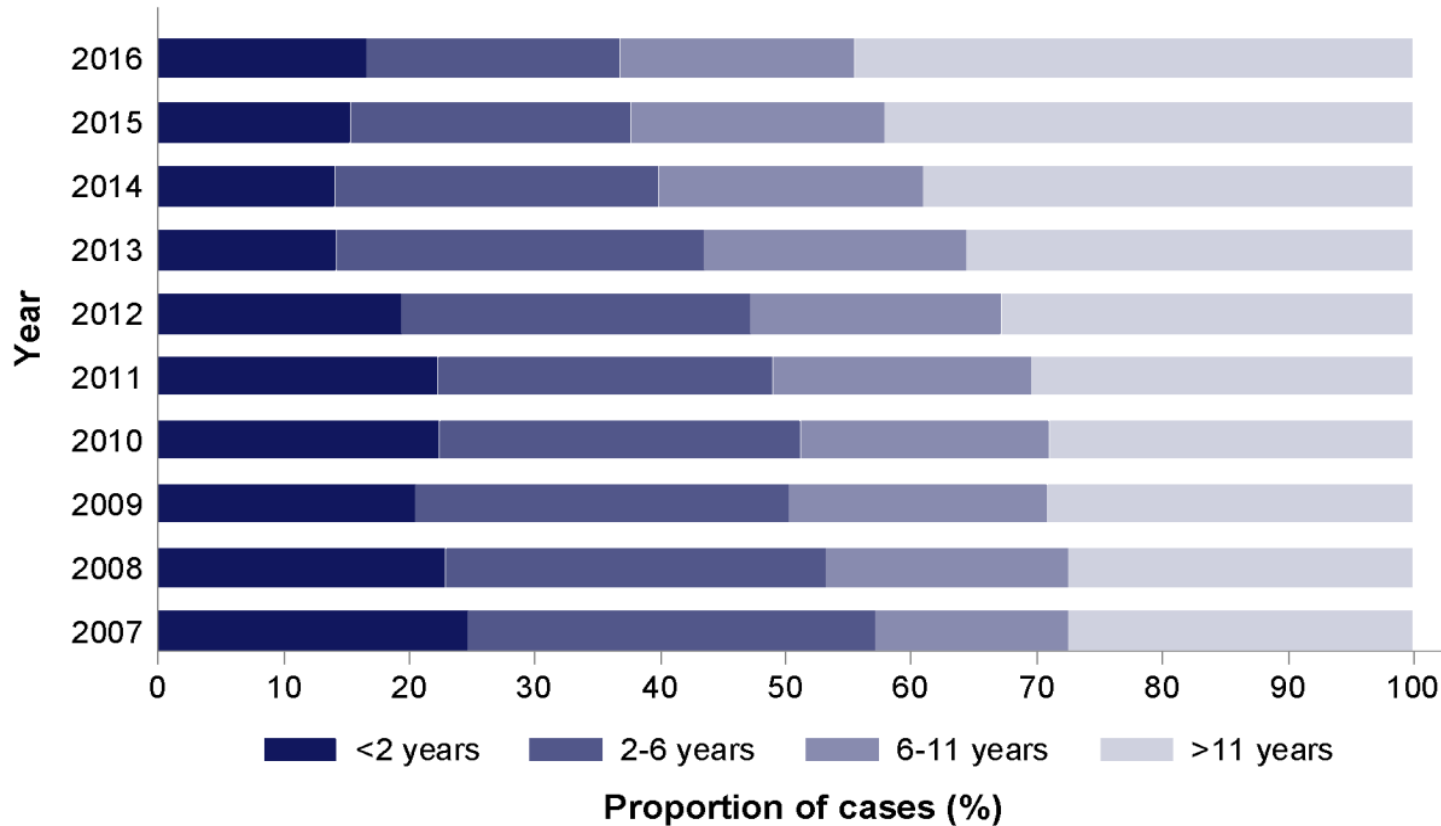
# Place of birth

- 31% (YH) and 26.4% (England) of TB cases in 2016 were UK born.
- TB in non UK born is YH is 21 x higher than residents born in UK
- Increasingly these are not new migrants but an increase among cases who have been resident here for more than 10 years

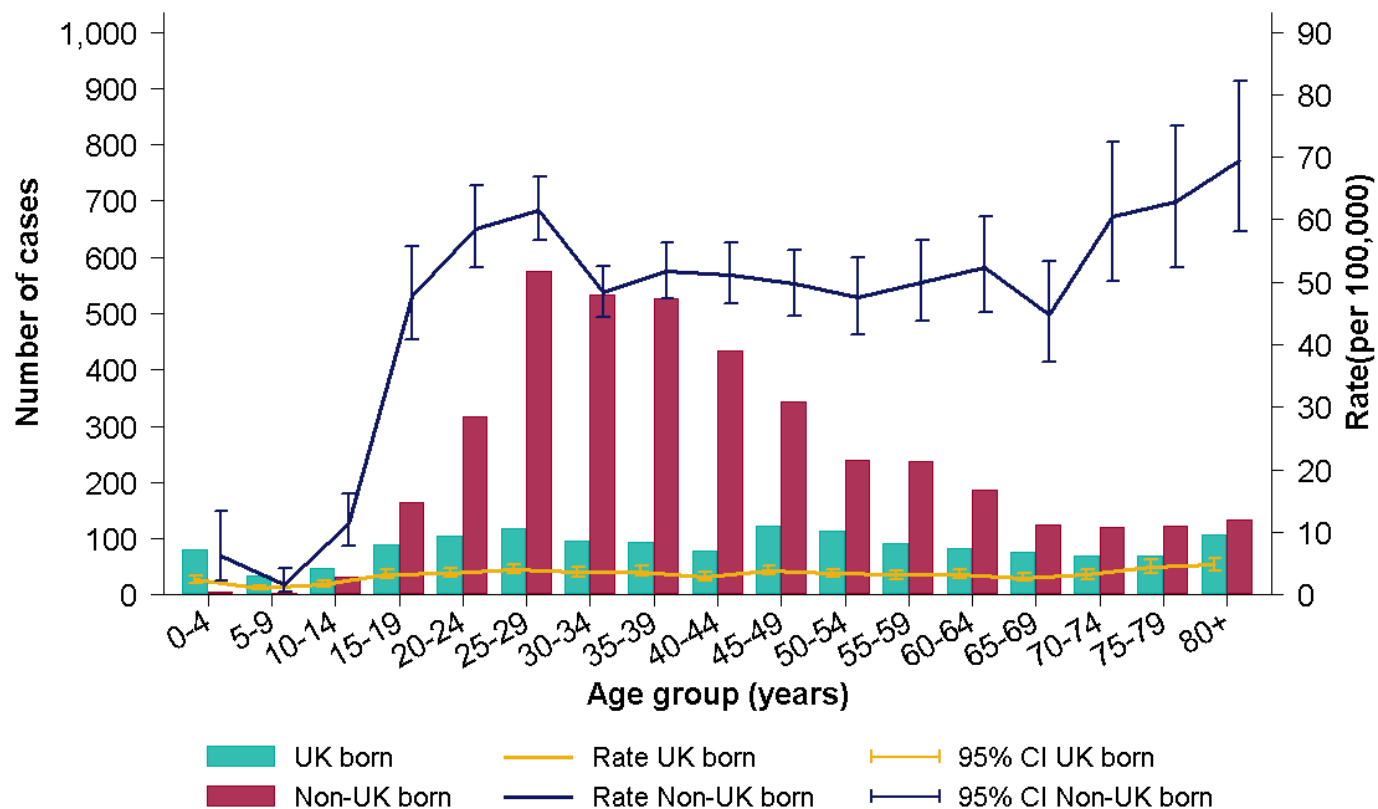
**Non-UK born tuberculosis cases by time since entry to the UK, Yorkshire and Humber, 2016**



# Time between entry to the UK and TB notification for non-UK born cases, England, 2007-2016

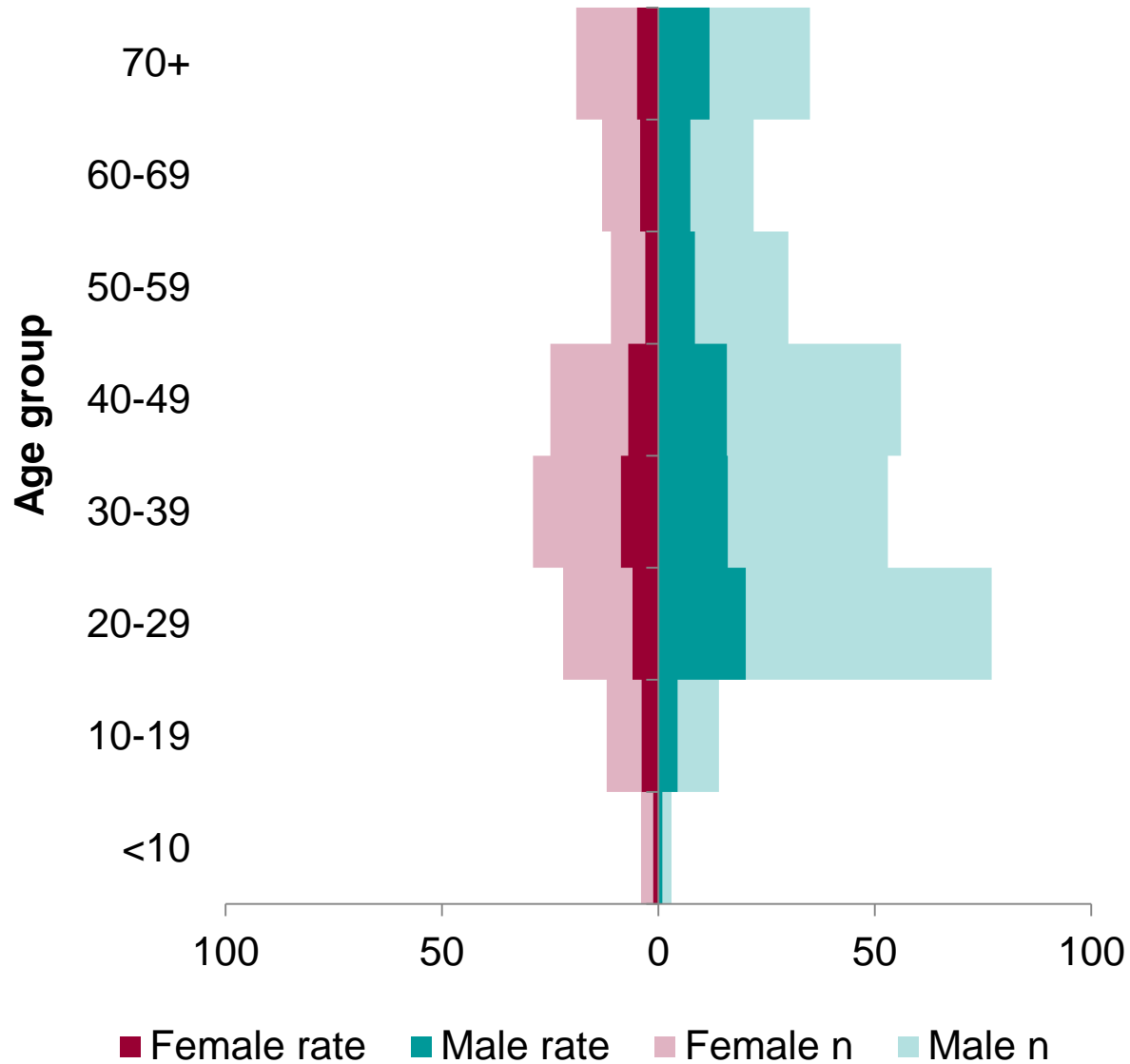


# TB case notifications and rates by age group and place of birth, England, 2016





# Age/Gender Profile in Y&H (2016)



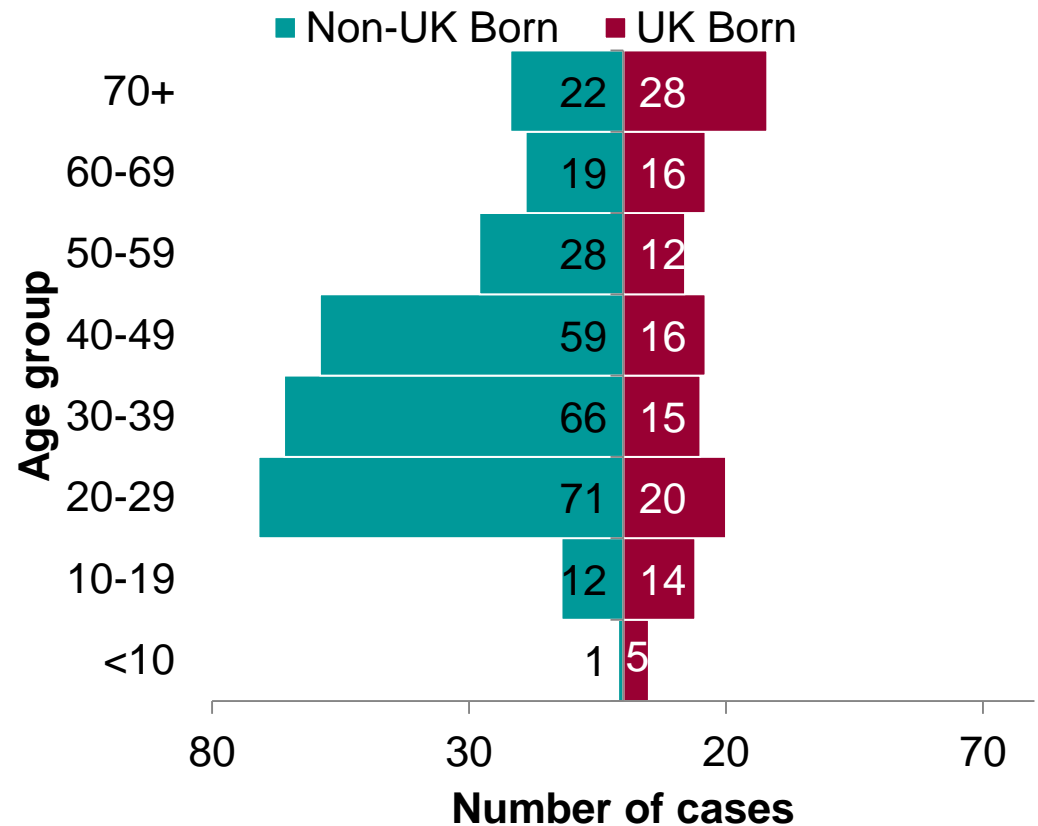




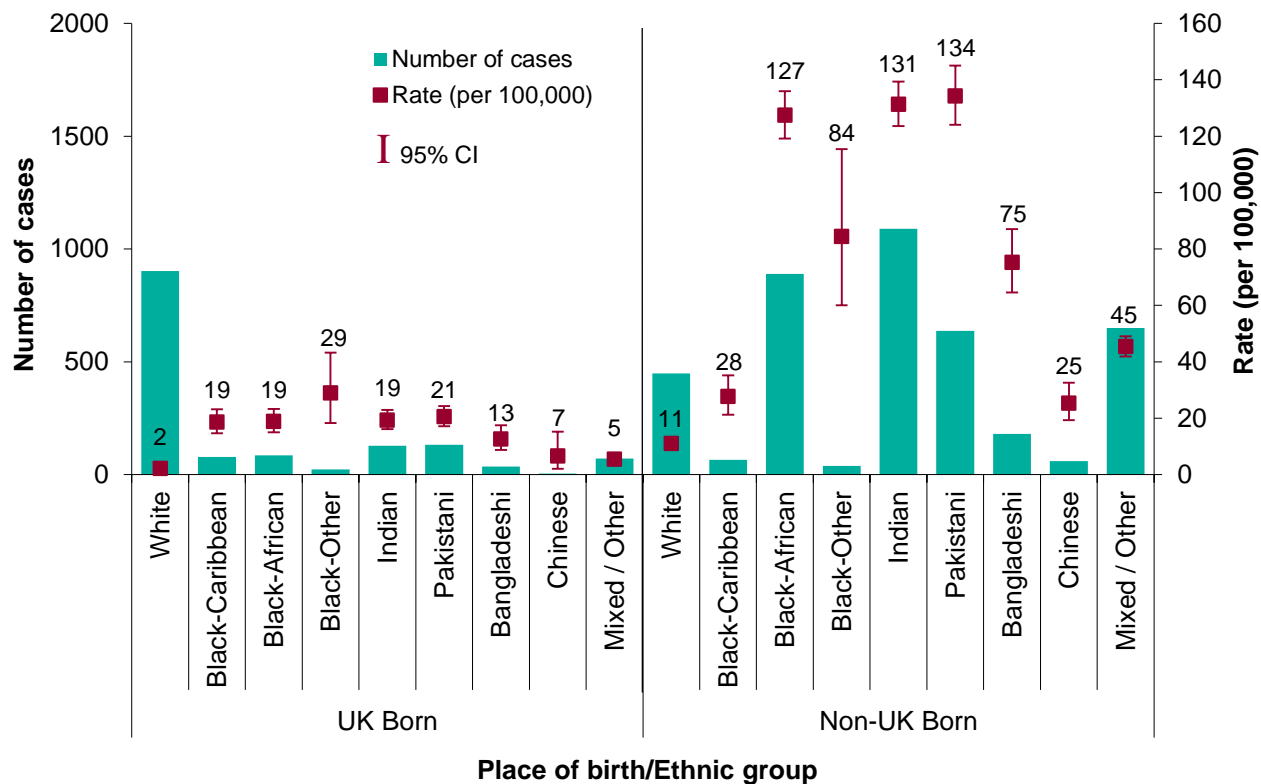
# Place of birth and age

So non-UK born cases  
exceed UK born cases in  
all ages in YH

Except 0-14 age groups and  
70+



# TB case notifications and rates by place of birth/ethnic group, England, 2016



**Please note:** rates by ethnic group are displayed as labels.



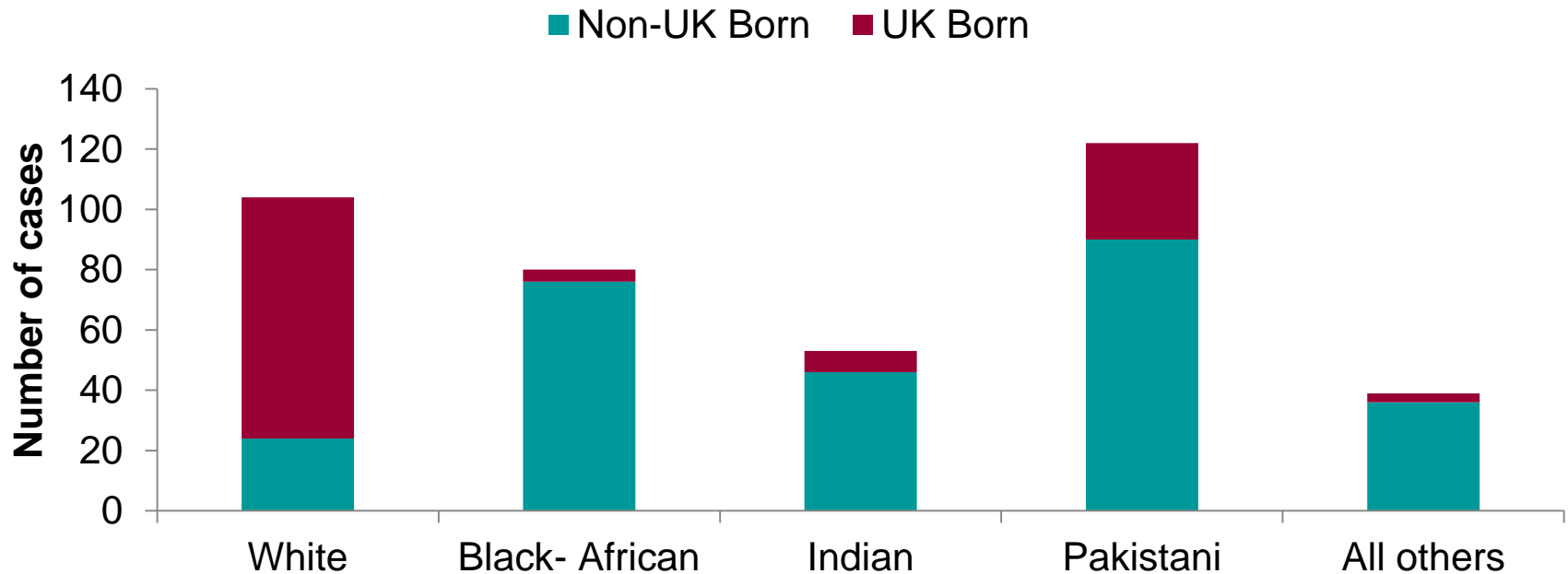
# Ethnicity YH

Highest burden among the Pakistani ethnicity (31%): But it has been declining

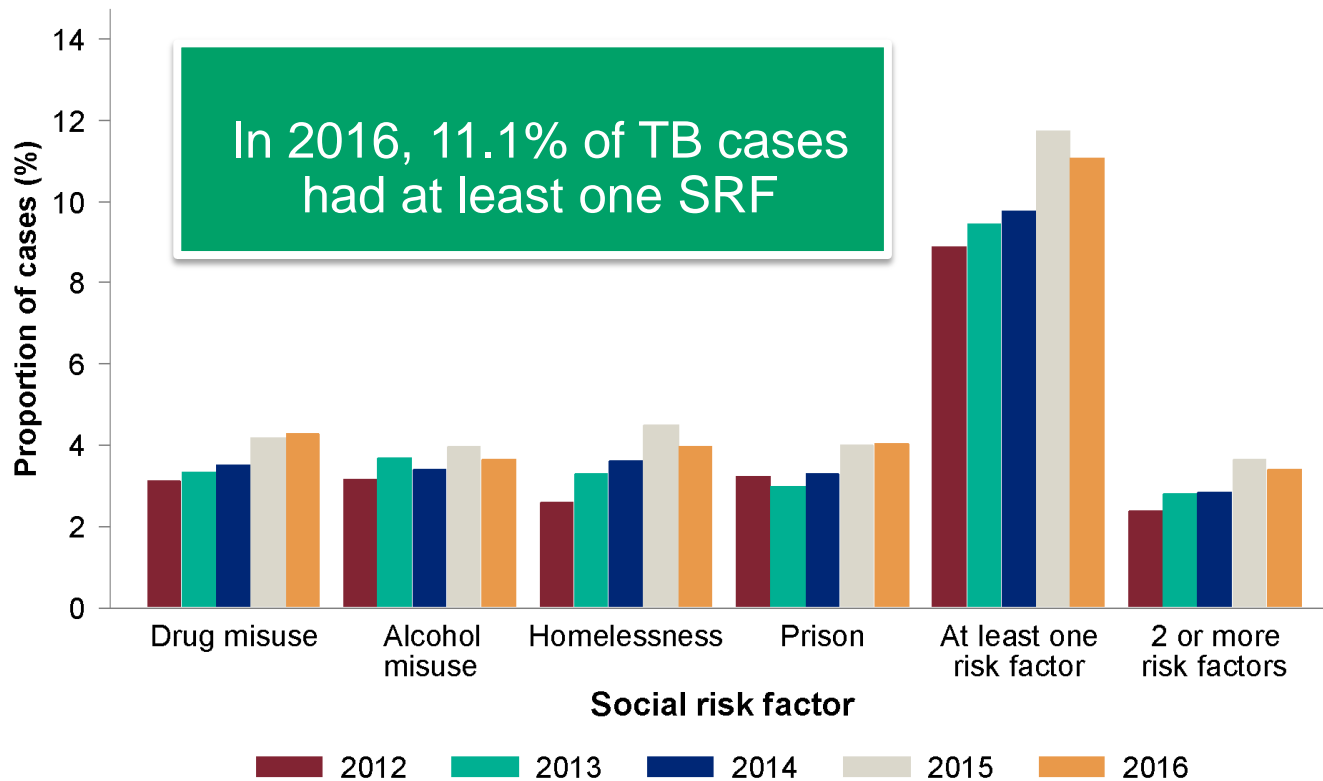
Indian Sub-Continent trend is for an increase in proportion UK born i.e. 23%

Black ethnicities – significant reduction - proportion UK born lower and more stable - case load, more closely linked with migration

White ethnicities – little overall change



# Proportion of TB cases with at least one social risk factor\*, England, 2012-2016

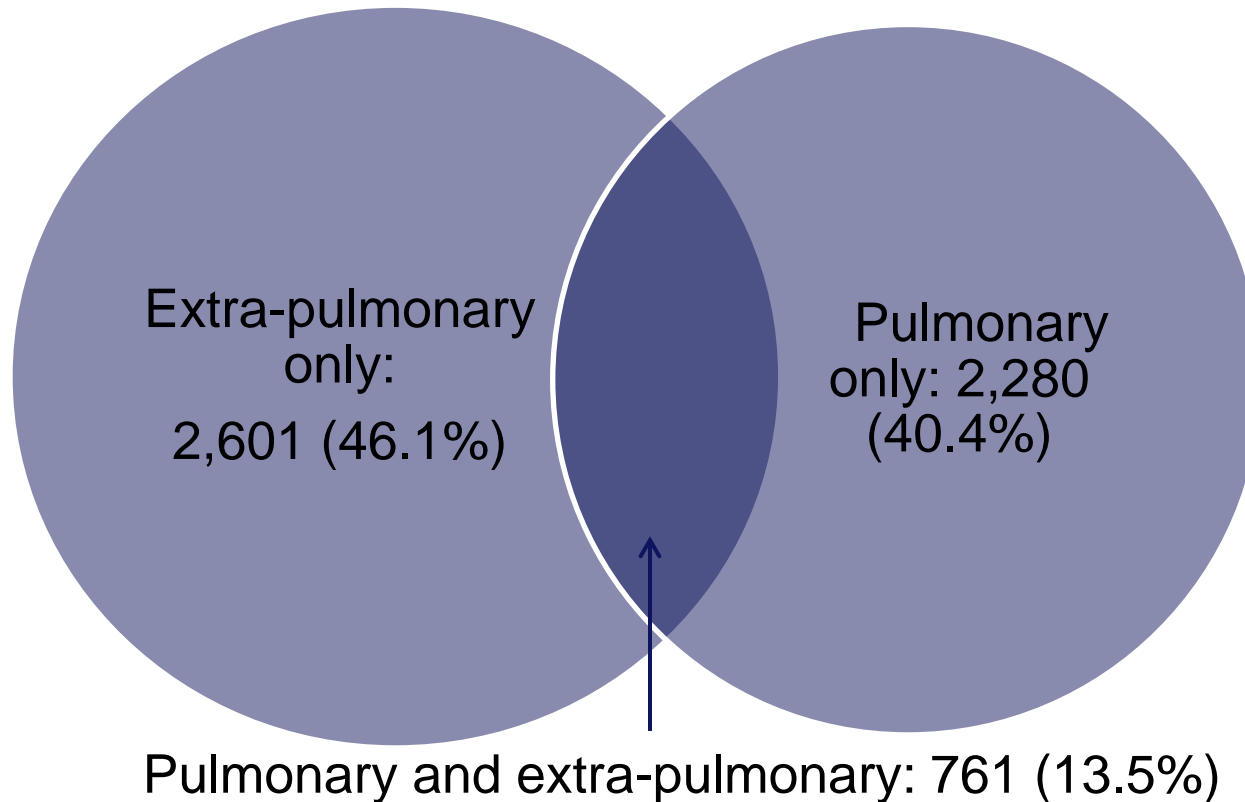


\* Includes those aged 15 years and older

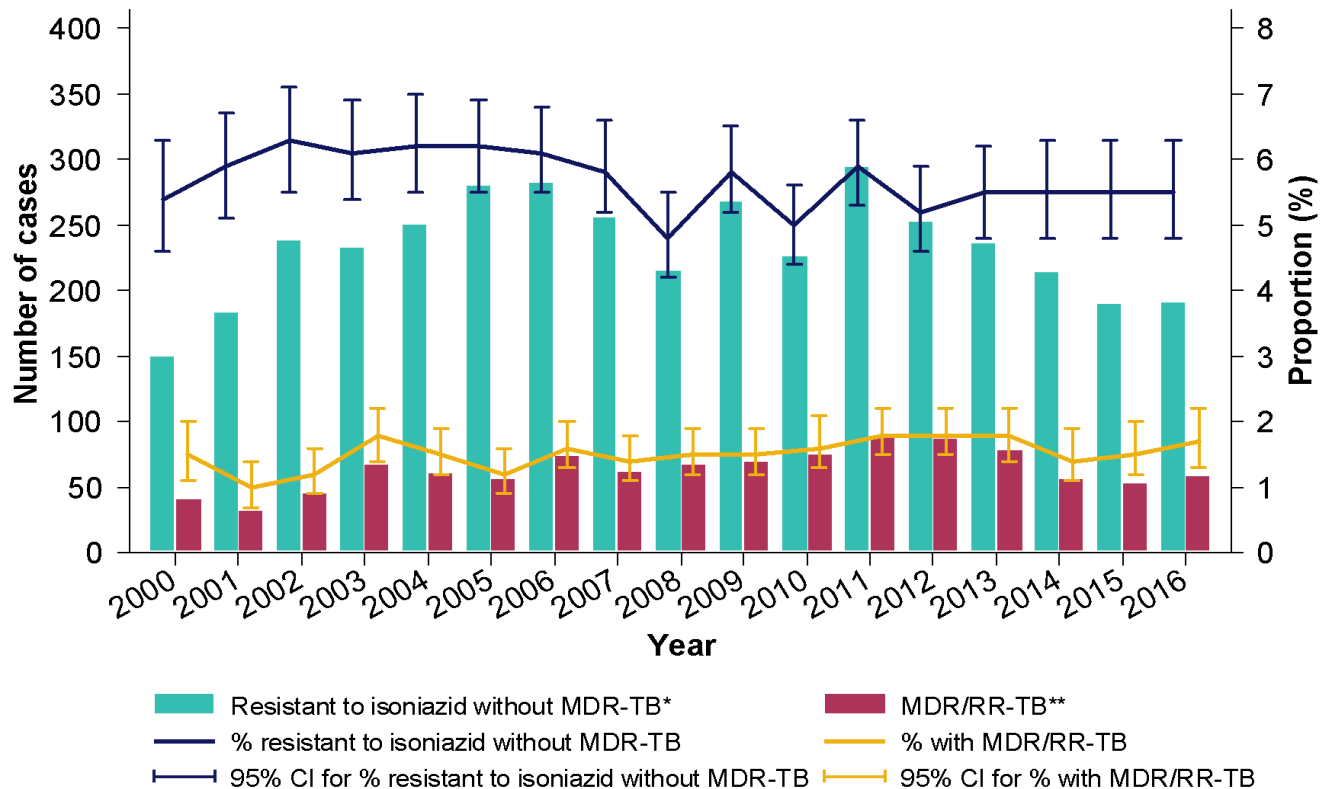
# TB case notifications by site of disease, England, 2016

5,642 TB cases notified where site of disease was known:

- 3,041 (53.9%) had pulmonary disease
- 3,362 (59.6%) had extra-pulmonary disease



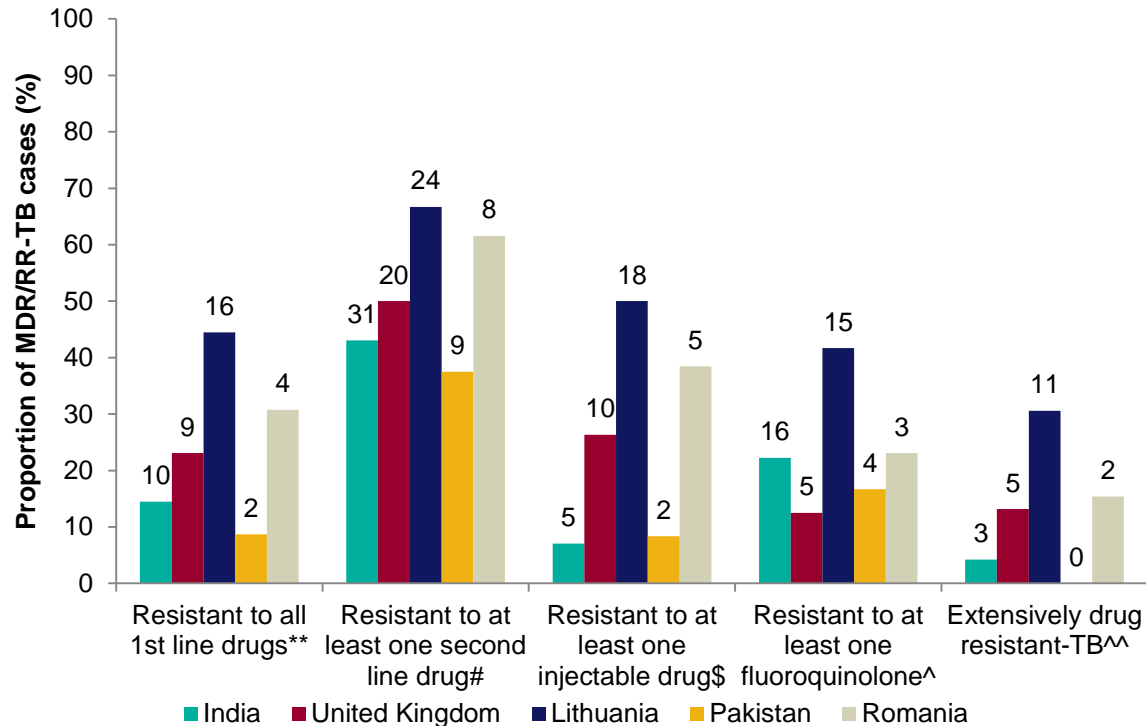
# Number and proportion of TB cases with initial drug resistance, England, 2000-2016



\* Cases with phenotypic DST results for at least isoniazid and rifampicin, resistant to isoniazid without MDR-TB

\*\* Cases with phenotypic DST results for at least isoniazid and rifampicin, resistant to rifampicin, including those with MDR-TB

# Number\* and proportion of MDR/RR-TB cases with second-line drug resistance by most frequent country of birth, England, 2011-2016



\*Number of MDR/RR-TB cases shown as data labels in figure

\*\* Cases with initial phenotypic DST results for at least isoniazid, rifampicin

# Cases with initial phenotypic DST results for at least isoniazid, rifampicin and at least one second line drug

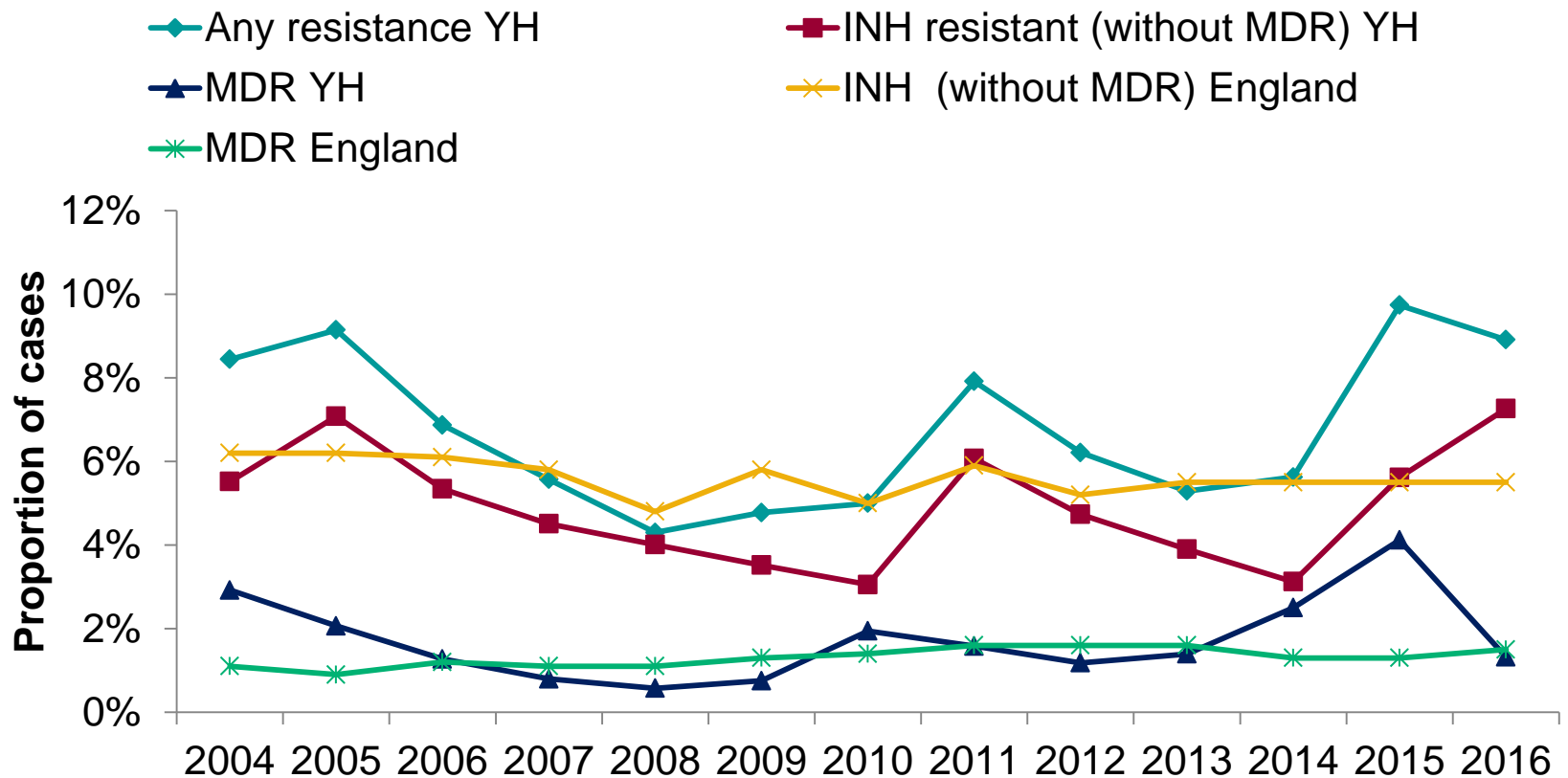
\$ Cases with initial phenotypic DST results for at least isoniazid, rifampicin and at least one injectable

^ Cases with initial phenotypic DST results for at least isoniazid, rifampicin and at least one fluoroquinolone

^^ Cases with initial phenotypic DST results for at least isoniazid, rifampicin and at least one injectable and at least one fluoroquinolone



# Proportion of culture confirmed tuberculosis cases with drug resistance, Yorkshire and Humber 2004-2016\*

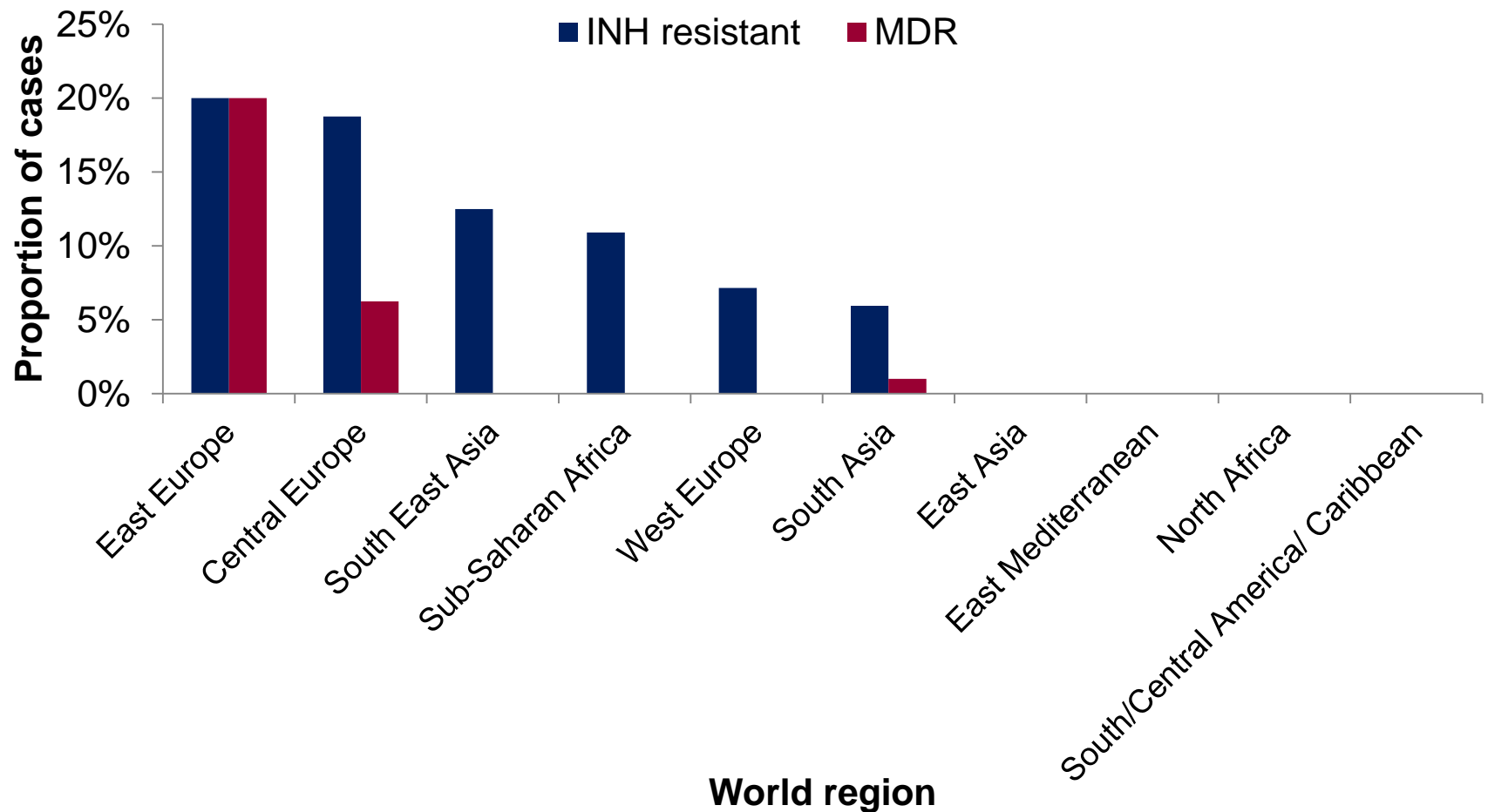


\*Cases with DST results for at least isoniazid and rifampicin





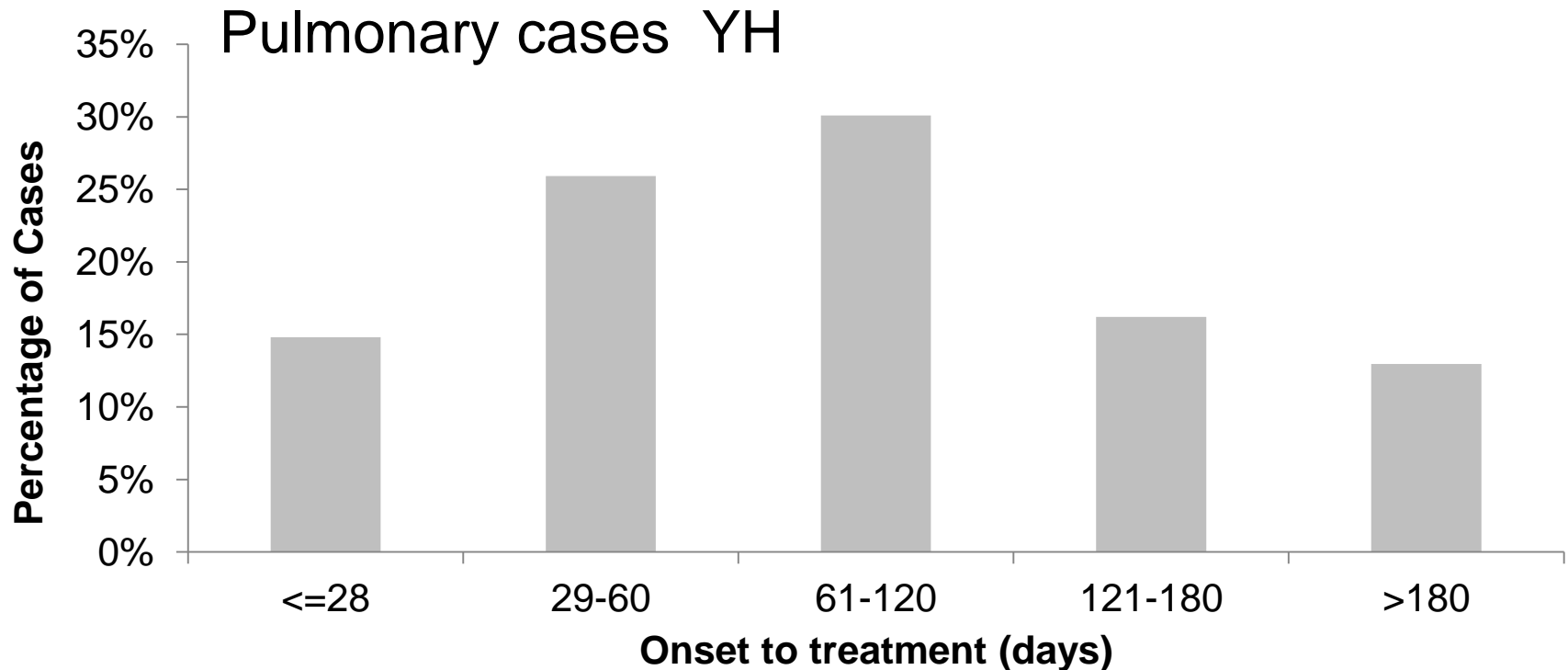
# Proportion of tuberculosis cases with drug resistance by world region of birth, Yorkshire and Humber, 2016





# Diagnostic delay

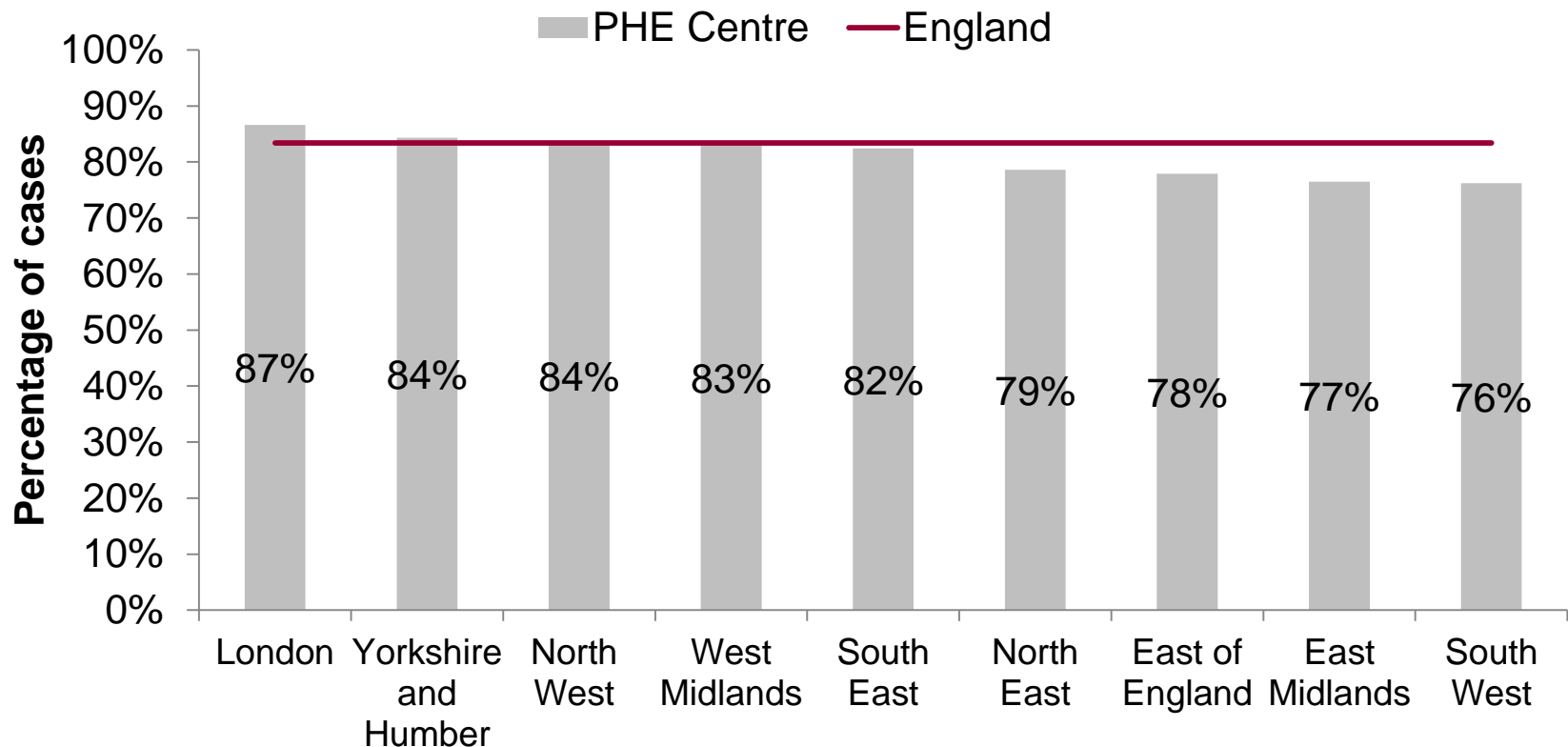
41% in YH started treatment within 2 months of symptom onset





# Treatment Outcomes

**Proportion of tuberculosis cases\* diagnosed in 2015 that complete treatment in twelve months, by Public Health England Centre, 2015**





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# Acknowledgements

**PHE Field Epidemiology:**

**Louise Coole, Mary Cronin, Angela Cox**



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Any Questions?